VI. CLAIMS

What is claimed is:

1. A section mill for oil wells having a casing, comprising:

A) an elongated cylindrical assembly coaxially extending within a casing and having first and second ends and including a first central through opening and said cylindrical assembly having first and second apertures at first and second predetermined distances, respectively, from said first end, said first predetermined distance being greater than said second predetermined distance;

B) means for applying a pressurized fluid to said second end;

C) a first tubular shaft assembly having third and fourth ends and including a second central through opening and said first tubular shaft assembly being coaxially housed within said cylindrical assembly and further including a first teethed portion at a third predetermined distance from said third end and said fourth end being exposed to said pressurized fluid urging said first tubular shaft assembly toward said first end;

D) a second tubular shaft assembly having fifth and sixth ends and including a third central through opening and said second tubular shaft assembly being coaxially housed within said first tubular shaft assembly and further including second teethed

portion at a fourth predetermined distance from said fifth end and said sixth end being exposed to said pressurized fluid urging said second tubular shaft assembly toward said first end;

E) first blade means pivotally mounted to said cylindrical assembly within said first aperture and cooperatively adapted to coact with said first teethed portion, said first blade means including at least one first blade member selectively movable between two extreme first and second positions, said first position being in substantial coaxial alignment with said cylindrical assembly and said second position being substantially perpendicular to, and protruding radially outwardly through, said cylindrical assembly and said first blade member including a smooth corner that comes in slidable contact with said casing when urged to said second position so that said first at least one blade member is allowed to fully distend only when the section mill advances downwardly a third predetermined distance;

F) second blade means pivotally mounted to said cylindrical assembly within said second aperture and cooperatively adapted to coact with said second teethed portion, said second blade means including at least one second blade member selectively movable between two extreme first and second positions, said first position being in substantial coaxial alignment with said cylindrical assembly and the other position being substantially perpendicular to, and protruding radially

outwardly through, said cylindrical assembly so that said at least one second blade member is brought in operational cutting contact with said casing;

G) first spring bias means to urge said fourth end towards said second end and overcome by the application of a source of pressurized fluid through said cylindrical assembly coacting against said fourth end of said first tubular shaft assembly so that at least one of said first blade members is urged against said casing and said first blade members being allowed to distend towards said second position only when said section mill advances a predetermined distance and there is no casing;

H) second spring bias means to urge said sixth end towards said second end and overcome by the application of a source of pressurized fluid through said cylindrical assembly coacting against said sixth end of said second tubular shaft assembly so that at least one of said second blade members is brought against said casing in cutting contact therewith thereby starting the cutting operation.

I) first packing means for sealing said cylindrical assembly within respect to said first shaft means.

J) second packing means for sealing said first shaft means with respect to said second shaft means; and

2. The section mill for oil wells set forth in claim **1** wherein said first and second teethed portions have a triangular cross-section.

3. The section mill for oil wells set forth in claim **2** wherein said first and second blade members include at least one supporting plate sandwiched by a layer of abrasive material.

4. The section mill for oil wells set forth in claim **3** wherein said abrasive material is tungsten carbide.